REMARKS

Claims 1-11, 13-22 and 24-27 were submitted for reconsideration and reexamination. In the aforementioned Office action, claims 1-11, 13-22, 24 and 25 were again rejected. Applicant notes with appreciation the continued indication of allowance of claims 26 and 27.

As in the previously made final rejection of the application, claims 1-8 and 13-16 were again rejected under 35 U.S.C. §102(e) as allegedly unpatentable over Takahashi et al. (US 6,275,518). Claims 9-11 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi. Claims 17-22, 24 and 25 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi in view of Martin et al. (US 6,061,562).

In the aforementioned Office action, the Examiner maintains all of the rejections and, in the Response to Arguments, asserts that Takahashi does teach a beam hopping system. The essence of the argument is that, "In order to transmit (a) signal from the base station A or B to the radio terminal, the antenna of base station A or B inherently transmits a beam and Takahashi teaches (a) hopping scheme (see Abstract). Therefore, Takahashi indeed teaches (a) hopping scheme."

Applicant respectfully traverses the rejections and takes issue with the foregoing comments by the Examiner. There is no denying that base stations A and B transmit radio beams. The relevant issue, however, is whether Takahashi teaches beam hopping, or whether, as Applicant believes, Takahashi teaches only a frequency hopping system. The Abstract referred to by the Examiner, and the very title of the reference, both clearly refer to <u>frequency</u> hopping, which is defined (col. 1, lines 12-14)

as a scheme in which the frequency is changed over time while information is being communicated. Takahashi's FIGS. 2A and 2B show diagrammatically a specific frequency hopping scheme. This is surely not easily confused with a beam hopping scheme, which is defined in Applicant's specification as a scheme in which downlink beam energy is shared between two target cells, or among more than two cells. Beam hopping is, in essence, time division multiplexing among multiple cells. Various beam hopping schemes are described in the specification, such as a 50-50 scheme in which a beam is switched back and forth between two cells on a 50-50 duty cycle basis.

Applicant's position remains that Takahashi discloses a frequency hopping system and does not disclose or suggest a beam hopping system. The independent claims have been further amended in an effort to further clarify this distinction. For example, claim 1 now recites that "each beam hop cycle defines how the downlink energy of one beam is time-shared between at least two cells and ... each of the transmitting steps comprises transmitting beam energy to at least two cells in a sequential manner defined by a hop cycle." The Examiner has yet to explain how Takahashi anticipates this aspect of the present invention. Takahashi neither discloses nor suggests any scheme of beam hopping.

The other independent claims have been similarly amended to further emphasize the distinction between beam hopping and frequency hopping.

As now more clearly recited in the amended claims, the distinction between a frequency hopping scheme, as In Takahashi, and the beam hopping scheme of the present invention has been clarified, and claims 1-8 and 13-16 are believed to be allowable over Takahashi. For further clarity, in Applicant's prior amendment a number

of the dependent claims were amended to remove ambiguity. In particular, the term "hop cycle" was amended to "beam hop cycle" throughout, to avoid possible confusion with a frequency hopping scheme. For completeness, Applicant's prior remarks concerning the other claims are repeated below.

Regarding claims 2 and 8, the Examiner refers to column 3, lines 50-64, to allege that Takahashi discloses transmitting downlink beam energy for a first hop pair, a second hop pair and a transition hop pair. The cited passage in Takahashi makes no sense at all in the context of a beam hopping scheme, but with the amendatory language now included in independent claims 1 and 7, there is believed to be no question but that Takahashi does not disclose or suggest transmitting downlink energy to beam-hopped pairs of cells.

Regarding claims 3 and 6, the Examiner contends that Takahashi also teaches transmitting power gated downlink frames, in column 5, lines 14-18. The cited text mentions a "hopping instruction frame" and contains numerous references to frequency hopping, but appears to contain no suggestion at all concerning power gated frames. In any event, these claims are also believed to be patentable with the claim from which they depend.

Regarding claims 4 and 13, the Examiner correctly notes that Takahashi contains a reference to using at least a first frequency, but once again the cited textual material relates to frequency hopping, not beam hopping. In contrast, a disclosed embodiment of the present invention uses the same frequency in all cells. (See Figure 7.)

Regarding claim 5, the Examiner contends that, because Takahashi teaches "frequency hopping in different cells," he inherently teaches transmitting second downlink beam energy according to a second (beam) hop cycle. Although this contention was debatable prior to this amendment, now that the claims more clearly define a beam hopping scheme this ground of rejection is no longer tenable.

Regarding the Examiner's comments concerning claims 14-16, these claims are believed to be allowable with the claim from which they depend.

Claims 9-11 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi. The Examiner's principal contention was that "Takahashi teaches the variable hop cycle of claim 7" and that the choice of particular hop cycle ratios would have been obvious. Again, Applicant believes that claim 7 as amended more clearly distinguishes the beam hopping scheme of the present invention from the frequency hopping scheme of Takahashi. Further, the specific choices of a 50-50, 75-25 or 50-25 hop cycle make absolutely no sense in the context of frequency hopping, but only in the context of a beam hopping scheme in which a beam is time-shared between cells. Accordingly, this ground of rejection is believed to be improperly applied to claims 9-11 as now amended.

Claims 17-22, 24 and 25 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Takahashi in view of Martin. In discussing Takahashi in the context of this rejection, the Examiner contends that the referenced patent inherently discloses hopping between cells, citing the abstract. As discussed above, Takahashi clearly teaches a frequency hopping scheme. The fact that different hopping schemes may be

applied to adjacent cells in order to minimize interference does not make this a beam hopping scheme. It is still very clearly a frequency hopping scheme.

The Examiner further notes in this rejection that Takahashi does not teach a switch directing the downlink beam between feed paths, and cites Martin to show such a switch. Applicant concedes that Martin discloses a switch for determining the direction of propagation from or to an antenna array. The existence of such a switch, however, does not overcome the deficiencies of Takahashi as a pertinent reference. Accordingly, it would not have been obvious at the time the invention was made to combine the teachings of Takahashi and Martin, because neither of them teaches or suggests a beam hopping system as defined by the rejected claims. Accordingly, claims 17-22, 24 and 25 are also believed to be allowable over the cited art.

In view of the foregoing remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections of claims 1-11, 13-22, 24 and 25. The undersigned attorney encourages the Examiner to initiate a telephone interview in the event that the distinction between frequency hopping and beam hopping is still not clearly made in the claims. Applicant would welcome a discussion and resolution of this issue, which appears to be the only impediment to allowance of the claims.

Respectfully submitted,

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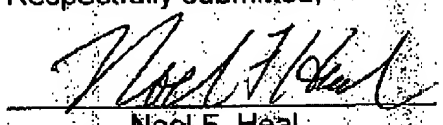

Noel F. Heal
Registration No. 26,074

Northrop Grumman Space Technology
One Space Park, E1/2041
Redondo Beach, CA 90278
Telephone: (310) 812-4910
FAX: (310) 812-2687